

## PET APPROVED FOR CERVICAL CANCER

On January 28, 2005, the Centers for Medicare and Medicaid Services (CMS) approved the use of Positron Emission Tomography (PET) scans in the staging of newly diagnosed cervical cancer for patients in whom conventional imaging (i.e. CT and/or MRI) has not revealed metastases outside the pelvis. Several studies have noted PET to be more sensitive than CT or MRI for detection of retroperitoneal nodal metastases from cervical cancer.

A prospective study was performed in which 50 women with advanced cervical cancer and negative CT for spread beyond the pelvis underwent PET scans. 14 of these patients had metastases to retroperitoneal lymph nodes at surgery. PET detected these patients with a sensitivity of 86% and specificity of 94%. (Gynecol Oncol 2003. April;89:73-76).

Also expected in the near future is CMS approval for PET in the staging of multiple myeloma.

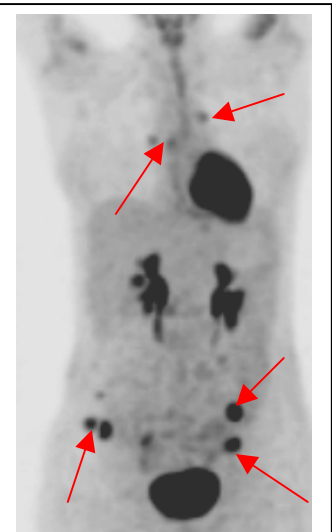
### CMS approved PET indications

#### Oncologic:

- Non small cell lung cancer
- Solitary pulmonary nodule
- Colon cancer
- Lymphoma
- Esophageal cancer
- Melanoma
- Head and Neck cancer
- Breast cancer
- Thyroid cancer
- Cervical cancer

#### Non-Oncologic:

- Alzheimer disease
- Seizure focus localization
- Myocardial viability



3D Coronal PET image of a cervical cancer patients with metastases (arrows)

## MAMMOGRAPHY SERVICES EXPANDED

With the recent installation of digital mammography, Main Street Radiology was able to expand our mammography services. We are now performing 40% more screening and diagnostic mammograms.

Due to low reimbursement, mammography service is being reduced throughout the country. In the New York area, many imaging centers do not perform mammograms. Our goal at Main Street Radiology is to provide comprehensive imaging service to our patients, which includes mammography. We feel that mammography is critical in the healthcare of our patients, and we will continue to provide outstanding and readily accessible service to the community.

## NUCLEAR MEDICINE TESTS CAN TRIGGER RADIATION DETECTOR'S ALARM

Increasing numbers of patients undergo medical tests and procedures that involve the use radioactive elements such as thallium or an iodine isotope. Detectable levels of some elements can remain in the body for as long as three months (see table below). It is possible that these remaining traces of elements could set off radiation detectors used for security purposes since September 11, 2001.

If a patient undergoes a test involving the administration of radioactive material and expects to travel soon afterwards, Main Street Radiology will provide a letter of explanation to the patient. A letter explaining the procedure may help answer any questions from security personnel in the unlikely event that the patient activates an alarm.

PROCEDURE	TIME RADIATION CAN BE DETECTED
PET Scan	Less than 24 hours
Bone and thyroid scan	3 days
Thallium cardiac scan	Up to 30 days
Iodine therapy	Up to 95 days

Based on an as-yet to be published study by Lionel Zuckier, M.D., Professor of Radiology at The University of Medicine and Dentistry of New Jersey & his colleagues

# CASE OF THE MONTH

## RENAL ARTERIO-VENOUS FISTULA

**History:** 46 year old male with one episode of gross hematuria. Outside ultrasound showed a calcified right renal mass. The patient was referred to Main Street Radiology for a multi-detector multi-phasic kidney CT.

**Findings:** On the pre-contrast axial image (Figure 1), small focal calcifications are seen within the right kidney (arrows). On the axial angiographic image (Figure 2), the calcifications are associated with dilated tortuous vessels (arrows). On the 3D angiographic image (Figure 3), single feeding artery (white arrow) and a single draining vein (yellow arrow) are associated with the vascular abnormality, compatible with an arterio-venous fistula.

**Discussion:** Abnormal arterio-venous (AV) communications of the kidney

can result in hematuria. There are two types of abnormal AV communications: Arterio-venous malformation (AVM) and Arterio-venous fistula (AVF).

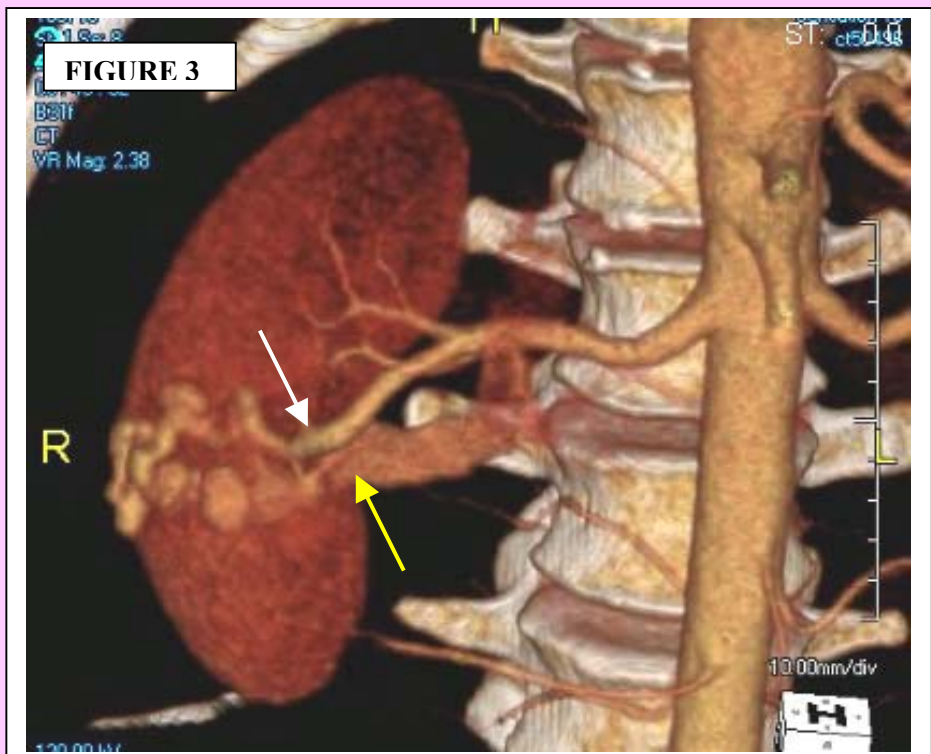
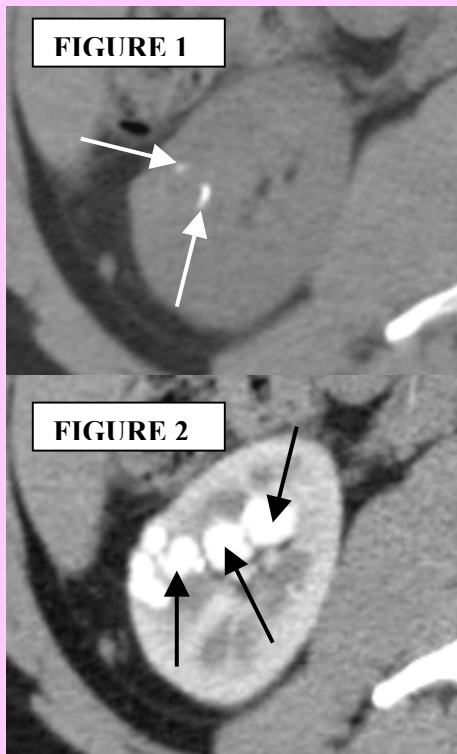
70-80% of renal AV communications are AV fistulas. AV fistulas are characterized by a single feeding artery and a single draining vein. It is usually secondary to prior trauma, surgery, biopsy, or inflammation. It may be associated with a neoplasm. AV fistula may cause CHF (secondary to shunting) and hematuria. Renal ischemia, insufficiency, and hypertension have also been described. The abnormal vessels may calcify.

AV malformations are usually congenital and more commonly found in women. It is characterized by multiple feeding arteries and draining

veins. Renal AVM's often cause hematuria.

At Main Street Radiology, a dedicated kidney CT involves acquisition of four sets of images on a multi-detector spiral CT to best evaluate all facets of renal pathology.

Pre contrast images optimally characterize calcifications, as well as establish a baseline in determining the presence of contrast enhancement of masses. Angiographic images are helpful in surgical planning and in identifying vascular abnormalities. Cortico-medullary and excretory phase images are most sensitive in detecting renal cortical and pelvo-caliceal masses.



**Figure 1:** Axial pre-contrast CT. Arrows = calcifications. **Figure 2:** Axial angiographic CT. Arrows = Arterio-venous fistula. **Figure 3:** 3D angiographic image. White arrow = feeding artery. Yellow arrow = draining vein.